

Cooling Controller



ESM-3770

Digital ON / OFF Cooling Controller

- Cooling Applications
- Economic
- Easy to Use

- 3 Digit display
- NTC input or PTC input or 2-wire PT-100 Input or 2-wire PT-1000 Input (It must be determined in order)
- ON / OFF Temperature Control
- 2 Step fan output
- Compressor OK digital input
- Adjustable hysteresis value
- Compressor protection time

SPECIFICATIONS

INPUT

NTC : NTC (10 k @25 °C)
 PTC : PTC (1000 @25 °C)
 Thermoresistance (RTD) : 2-wire PT 100, PT 1000 (IEC 751)(ITS90)

Measurement Range : It is in ordering information
Accuracy : ±1% of scale
Cold Junction Compensation : Automatically ±0.1°C/1°C

Sensor Break Protection : Upscale
Sampling Cycle : 3 samples per second

CONTROL

Control Form : ON/OFF
ON/OFF hysteresis : It can be configured by the user

OUTPUTS

Control Output :
 Compressor Out Relay (10A@250V~ at resistive load)
 Fan1 Out Relay (5A@250V~ at resistive load)
 Fan2 Out Relay (5A@250V~ at resistive load)

DISPLAY

Process Display :
 ESM-3770 : 14 mm Red 3 digits LED Display

LED Indicators :

SV (Red), Compressor Output Active (Red), Error (Red), Fan1 Output Active (Red), Fan2 Output Active (Red), Fan Outputs Passive (Red)

POWER SUPPLY

Supply Voltage :
 24 V ~ (-%15, +%10) 50/60 Hz -1.5 VA

ENVIRONMENTAL RATINGS and PHYSICAL SPECIFICATIONS

Operating Temperature : 0...50°C
Humidity : 0-90%RH (none condensing)
Protection Class : IP65 at front, IP20 at rear

Weight :

ESM-3770 : 150 gr

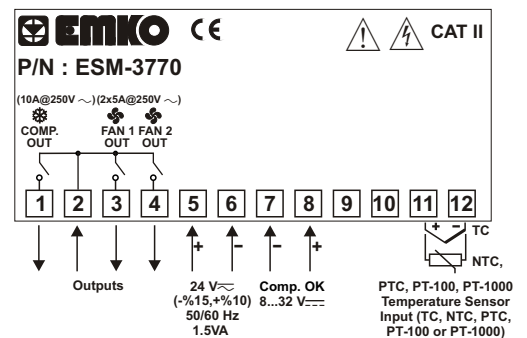
Dimension :

ESM-3770 : 77 x 35 mm, Depth : 62.5 mm

Panel Cut-Out :

ESM-3770 : 71 x 29 mm

Electrical Wiring



Ordering Information

ESM-3770 (77x35 DIN Size)	A	BC	D	E	/	FG	HI	/	U	V	W	Z
	2	0	/	/	/	2	0	0				

A	Supply Voltage
2	24 V ~ (-%15, +%10) 50/60 Hz

BC	Input Type	Scale(°C)
11	PT 100, IEC751(ITS90)	-50°C 400°C
09	PT 100, IEC751(ITS90)	-19.9°C 99.9°C
12	PTC (Note-1)	-50°C 150°C
15	PTC (Note-1)	-19.9°C 99.9°C
14	PT 1000, IEC751(ITS90)	-50°C 400°C
13	PT 1000, IEC751(ITS90)	-19.9°C 99.9°C
18	NTC (Note-1)	-50°C 100°C
19	NTC (Note-1)	-19.9°C 99.9°C

Note-1 : If input type is selected PTC or NTC (BC = 12, 15, 18, 19), Temperature sensor is given with the device. For this reason, If input type is selected as PTC, sensor type (V = 0,1 or 2) or If input type is selected as NTC, sensor type (V = 0,3 or 4) must be declared in ordering information.

E	FG	HI	Outputs
1	01	01	Compressor Output(10 A@250 V ~ at resistive load, 1NO) Fan1 Outputs(5 A@250 V ~ at resistive load, 1NO) Fan2 Outputs(5 A@250 V ~ at resistive load, 1NO)

V	Temperature Sensor that is given with ESM-3770
0	None
1	PTC-M6L40.K1.5 (PTC Air Probe with 1.5 m silicon cable)
2	PTCS-M6L30.K1.5. 1/8" (PTC Liquid Probe with 1.5 m silicon cable)
3	NTC-M5L20.K1.5 (NTC Probe, thermoplastic moulded with 1.5 m cable for cooling application)
4	NTC-M6L50.K1.5 (NTC Probe, stainless steel housing with 1.5 m cable for cooling application)
9	Customer



Installation



Before beginning installation of this product, please read the instruction manual and warnings below carefully.

In package ,
- One piece unit
- Two pieces mounting clamps
- One piece instruction manual

A visual inspection of this product for possible damage occurred during shipment is recommended before installation. It is your responsibility to ensure that qualified mechanical and electrical technicians install this product.

If there is danger of serious accident resulting from a failure or defect in this unit, power off the system and separate the electrical connection of the device from the system.

The unit is normally supplied without a power switch or a fuse. Use power switch and fuse as required.

Be sure to use the rated power supply voltage to protect the unit against damage and to prevent failure.

Keep the power off until all of the wiring is completed so that electric shock and trouble with the unit can be prevented.

Never attempt to disassemble, modify or repair this unit. Tampering with the unit may result in malfunction, electric shock or fire.

Do not use the unit in combustible or explosive gaseous atmospheres.

During the equipment is putted in hole on the metal panel while mechanical installation some metal burrs can cause injury on hands, you must be careful.

Montage of the product on a system must be done with it's fixing clamps. Do not do the montage of the device with inappropriate fixing clamp. Be sure that device will not fall while doing the montage.

It is your responsibility if this equipment is used in a manner not specified in this instruction manual.

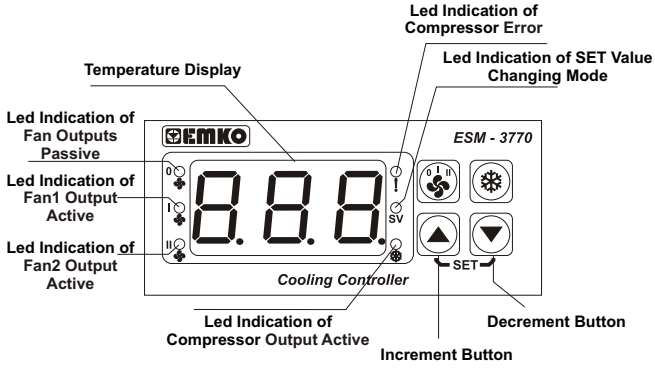
Warranty

EMKO Elektronik warrants that the equipment delivered is free from defects in material and workmanship. This warranty is provided for a period of two years. The warranty period starts from the delivery date. This warranty is in force if duty and responsibilities which are determined in warranty document and instruction manual performs by the customer completely.

Maintenance

Repairs should only be performed by trained and specialized personnel. Cut power to the device before accessing internal parts. Do not clean the case with hydrocarbon-based solvents (Petrol, Trichlorethylene etc.). Use of these solvents can reduce the mechanical reliability of the device. Use a cloth dampened in ethyl alcohol or water to clean the external plastic case.

Front Panel



Set Value Changing Mode

It can be accessed with or button that is on front panel. When whichever or button is pressed **SET** expression is shown on the display, after releasing the pressed button set value is shown on the display and SV led becomes active. Set value can be adjusted with and buttons.

Press button for exit from set value changing mode with saving set value or press button for exit from set value changing mode without saving set value

Parameters

Entering to Programming Mode

When both and button is pressed, **SEE** expression is shown on the display. After 5 secs pressing both buttons, the first parameter of programming mode **HSE** is shown on the display.

Press button for showing parameter value and saving the parameter value, press button for exit from parameter section without saving parameter value.

HSE Hysteresis Parameter for Compressor Output (Default : 3°C)
This parameter value can be adjusted from 0 to %50 of device input scale

ACE Compressor Stop/Start Time Delay Parameter (Default : 0)
When compressor is inactive, this time delay must be expired for activation of the compressor.
It can be adjusted from 0 to 99 seconds.

Other Informations

Manufacturer Information:

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